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Antirrhinums and
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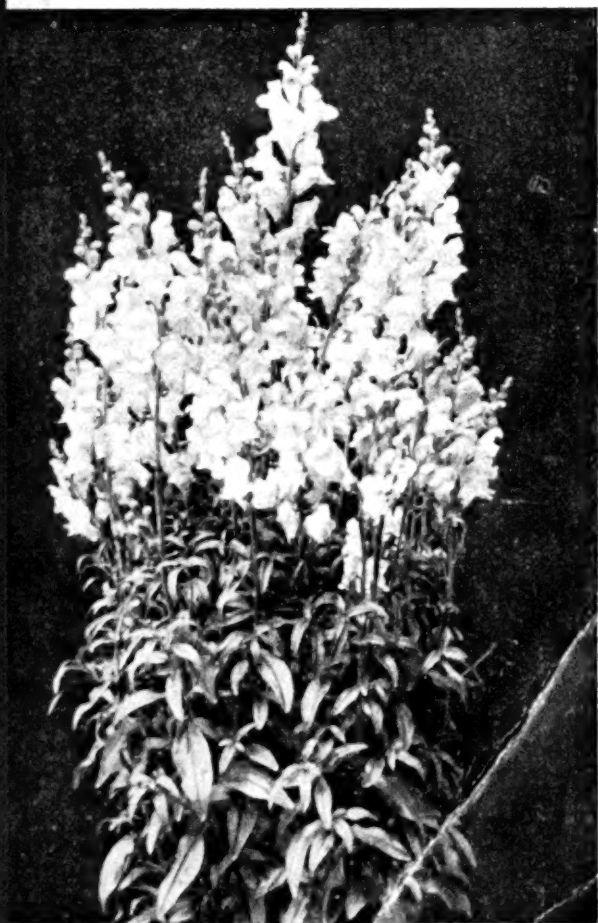
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STIRRHINUMS AND ANTSTEMONS

ICAL BOOKLET ON THE MOST SUCCESSFUL METHODS
YATING AND PROPAGATING THESE POPULAR FLOWERS

By A. J. MACSELF



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ANTIRRHINUMS AND PENTSTEMONS



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BY
A. J. MACSELF

L O N D O N

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ANTIRRHINUMS

FEW, surely, who have any love at all for flowers fail to recall the old-fashioned Antirrhinums that grew and blossomed with extravagant freedom in our grandmothers' gardens. We called them by such names as Snapdragon and Bunnies' Mouths, and even before we were old enough to appreciate their beauty we found amusement in pinching the tube of the blossom to make it open its mouth.

True, those old-fashioned cottage-garden flowers were, generally speaking, of somewhat dull or washy colours; the spikes and the individual blossoms were small, and the plants were of straggling and ungainly habit; but they had always that much to their credit, that they were hardy enough to grow anywhere, to look after themselves, and they were continuously in bloom from the very beginning of summer to the very end of autumn.

A plant with such characteristics was bound to find its way into the gardens of those who, whilst having a love for flowers around the homestead, had little of cultural knowledge, spare time, or money to spend upon their gardens, and it was because the Antirrhinum was strong and prolific that it survived the battles for existence and became widespread throughout Cottage Gardendom, where the law of Survival of the Fittest was often as inexorable as on the hillsides and wide wastes of the open countryside.

There must, however, have been something more than mere hardihood and tenacity about even the old cottage-garden Antirrhinum, for it found a place many long years ago among the favoured flowers that engaged the atten-

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tion of those keen and discerning flower lovers and growers whom we of to-day refer to as the old school of florists. They were a body of men by themselves who set up ideals and worked with inexhaustible patience and perseverance to attain the ideals they themselves had set up; and despite the affected contempt with which the modern gardener looks down upon the old florist, it was he more than any other who accomplished the pioneer work, and achieved the first triumphs in evolution and building up of the choicest and most beautiful of the flowers that enrich our gardens to-day, and have placed Britain in the vanguard of horticulture.

Just how long ago it is since the florist took the Antirrhinum in hand I cannot say, nor is it of particular importance that dates should be fixed for a book such as this; let it suffice that wellnigh, if not quite, a century ago good men and true set up standards of points, and with an ideal before them exerted themselves to raise, select, and propagate Antirrhinums of good quality.

Clear self-colours were sought and obtained, and later variegated, striped, spotted, or speckled flowers became special favourites with all but a few who vigorously protested against any flower that departed from the orthodox self-colours. It is a noteworthy fact that one of the oldest and most distinct striped Antirrhinums is still in cultivation and is held in high esteem, especially in Scotland. This variety is *Antirrhinum Hendersonii*, raised something over seventy years ago by Mr. Henderson, a worthy old florist who had a nursery in Maida Vale, London.

A. Hendersonii is clearly and evenly striped with carmine on a pure white ground, and to see a fair-sized bed of this striking flower is a sight that surely must appeal to all real lovers of beautiful flowers, whilst as an exhibition variety it has always been held in high esteem by those who judge a flower on its "points."

Reference to one of the early catalogues published by that fine old florist, John Forbes of Hawick, serves to show that in the seventies and eighties the speckled and striped varieties were the prime favourites, for in a list of seventy-five named varieties not one self-coloured is included; but that these were grown simply for bedding purposes is evidenced by the fact that in the catalogue paragraphs from the current issues of the *Garden* are reprinted which relate that gatherings of Snapdragons had been received from Hawick, and that "the most beautiful are the 'selfs,' which in our opinion are much superior to the fancy speckled strains that are coming so much into vogue."

Whether the writer of that paragraph was right or wrong must ever remain a matter of individual opinion and taste, but at all events, were he writing to-day, he surely would rejoice in the fact that self-coloured Antirrhinums of the richest and most gorgeous hues have not only come into vogue, but have attained widespread popularity. Indeed, few flowers have of late years made such remarkable progress, for the modern Antirrhinum bids fair to occupy the foremost position among subjects for massing in beds and borders, and it is also becoming more prominent each year as an exhibition flower, although the manner in which it is shown at our leading shows differs from the style of the old florists; for whereas they were accustomed to set up individual spikes, we now put up great masses which produce an imposing effect.

The points of merit in the old type beloved of the florist were clear, distinct, and evenly distributed markings on a ground of either yellow or pure white. The petal or standard at the back of the flower was required to be of neat, symmetrical outline; the nose and lip must be well rounded, having a "full" appearance; and the nose itself was generally tipped with deep yellow, whatever the colour of the rest of the flower. The mouth and throat,

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exposed when the bloom is pinched at the sides, was generally yellow, and the cleaner the better. The lower half of the flower, called the "tube," could be either clean white or coloured after the manner of the frill and lip. The blooms were required to be closely and compactly set upon the stem, forming a dense and even spike, gaps, looseness, or horizontal poise of the individual flowers being considered serious blemishes.

The selfs, usually referred to in old works and catalogues as bedding varieties, were sought in clean whites, yellows, pink and rose shades, reds, crimsons, and purples, and as long ago as I can remember all these colours could be had in clear, decisive shades, although some of the rosy and purple shades were a bit flat and dull.

From all points of view it must be acknowledged that, with a broader and less conventional standard or ideal, raisers of the twentieth century have evolved, developed, and perfected a race of Antirrhinums that for garden use surpasses the very best of the old types, and in colours, except those of quaint stripes, mottling, and speckles, the Antirrhinums of to-day are brighter, richer, and far more varied.

It has been customary to classify Antirrhinums under three headings—Majus, or tall; Nanum, or intermediate; and Tom Thumb, or dwarf; but it has become almost necessary to use four different terms to distinguish the modern Antirrhinum, for we have a number of noble giants that attain a height of over 4 feet and even up to 5 feet under fairly good cultivation. Then we have many intermediates that run between 2 and 3 feet, dwarfer intermediates that grow from 12 to 18 inches, and real Tom Thumbs that make compact little bushes smothered with short heads of bloom scarcely attaining a height of 6 inches. The intermediates are probably the most generally serviceable, for they are capable of furnishing beds of fairly large size, or of forming effective clumps in the

herbaceous border, whilst for cutting they are excellent, providing an abundance of good spikes. The very tall ones are admirably adapted for border work, where their upstanding spikes, with anything from 7 to 10 inches of open flowers when at their best, make an imposing display, especially when planted in groups of about a dozen plants of one variety. For large circular beds the tall varieties make a good centre, or they may be distributed over the bed with intermediates between, thus breaking what might be called the monotony of uniform heights.

The Tom Thumbs are not suitable for cutting, but are very useful for narrow borders in confined spaces, for small beds, or for the margins of larger beds otherwise occupied by the taller varieties.

In the evolution of the modern Antirrhinum crossing of one colour with another has played its part, and in some cases species of Antirrhinum and Linaria have been utilised; but a great deal more than mere crossing has been necessary, for the production of a new shade or combination of colours is but the first stage; the fixing of characteristics in an Antirrhinum before it can take its place as a new variety involves a great deal of patient work in roguing and reselecting. Only by this means has it become possible to raise from seed a distinct named variety with a fair amount of certainty that the seedlings will come true in form, habit, and colour.

Formerly all named varieties had to be propagated from cuttings, but thanks to the skill and care that have of late years been devoted to the purpose it is now possible, if we rely only upon the best strains and stocks of specialists, to sow a packet of seed with an assurance that a very large percentage will be true reproductions of the variety indicated by the name. This is a very great advantage, and there can be no doubt it is largely due to the practice of this natural method of propagation that the excellent constitution and freedom from troublesome

diseases which make Antirrhinums so serviceable for ordinary garden work have been so well maintained.

It is very gratifying to be able to claim that, although we have certainly obtained some few of our Antirrhinums from foreign sources, the major part of the work of evolution of the modern types, strains, and varieties lies to the credit of British horticulturists. Messrs. Watkins and Simpson, the wholesale seedsmen of London; Hurst and Sons, also of London; Dobbie and Co., of Edinburgh; W. H. Simpson and Sons, of Birmingham; Sutton and Sons, the well-known Reading firm; and R. H. Bath, Ltd., Wisbech, have been energetic and successful in producing the strains and varieties that have brought Antirrhinums to the prominent position they deservedly occupy to-day.

CULTURE OF ANTIRRHINUMS.

For Beds and Borders.

To obtain the finest possible results stock should be raised in autumn, and carried through winter in cold frames or an unheated greenhouse. Not that the Antirrhinum is a tender plant that requires coddling and nursing, and as a matter of fact in open country gardens with fairly porous, well-drained soil the young plants will stand the winter out of doors unharmed; but in the neighbourhood of London and other large towns the sooty deposit that settles on the young foliage after rains and fogs chokes the pores of the leaves and often proves more fatal than severe frost.

The seed should be sown very thinly, and the young plants must be pricked out whilst still quite small, for anything approaching overcrowding in the early stages will cause the plants to draw up weakly, with leggy stems.

Too much water during the short, dull days of winter is bad for the plants, especially if accompanied by lack of

ventilation. Indeed, on all but the severest days throughout winter the lights should be opened for a part of the day, the object being to produce hard, stocky, and short-jointed plants ready for planting out in spring.

It will make a great deal of difference if the plants can be potted into small 60's during January or February, for that will ensure quick establishment with no check when planted in flowering quarters.

The precise time for planting must be governed by weather conditions; but if the soil is in a good workable state and the weather not too rough and wintry, from the middle to the end of April is the time to plant.

In regard to soil the *Antirrhinum* is not at all fastidious, and may be said to thrive in any well-dug soil. The best results are obtainable where one has a fairly heavy soil, livened up with a moderate dressing of short manure and a liberal addition of sand, road grit, or pulverised mortar. It is beneficial to dig the soil deeply, but nevertheless the roots like a firm bed. In fact, it is well to tread round the plants, and then just stir the surface with a Dutch hoe to facilitate aeration.

Do not make the soil over-rich with manure, as that will cause soft, sappy growth, fasciated stems, and misshapen flowers. Feeding is best left until the first flower-spikes have developed, after which a good fertiliser may be sparingly sprinkled around the plants and hoed in at intervals of a fortnight or so throughout the summer.

Spring Sowing.

Where it is inconvenient to sow seed in autumn, very good results may still be obtained by sowing in February in a house maintaining a moderate temperature, and if the young plants are pricked out when about an inch high and kept steadily growing they may be made ready for planting out by the latter end of April. Of course, they will be later in commencing to bloom than the autumn

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sown, but from June right on to late autumn a fine display will be secured.

Where large beds or borders are to be filled it is a good plan to plant alternately with autumn-sown and spring-sown plants. Early flowers will thus be obtained from half the plants, the intervening ones adding their quota to a full display ere midsummer.

By the end of July the autumn-sown plants can be cut back, and will scarcely be missed. Young growths will then throw up, and a second crop of fine blooms will be secured during September and October.

Propagation by Cuttings.

The only certain method of perpetuating a particular variety of *Antirrhinum* without variation of colour is by rooting or striking cuttings, and where one has a special favourite or an exceptionally good variety which it is desired to preserve and increase, this method is the propagation that should be adopted, albeit there is a tendency toward weakening of constitution if one's stock is thus obtained for a number of consecutive years. There is, however, this safeguard, that when a good stock has been raised, and grown quite apart from other varieties, seed may be saved from which a large proportion of plants will prove true. If a few rogues appear they should be pulled up and destroyed, and the true stock may thus be preserved in a robust condition.

Cuttings should not be made from thick, succulent growths that rise from the base of the plants, the best material being the wiry side-shoots that break out from the main stems after flower-spikes are cut. Hence it is a good plan to cut some of the main spikes while in full bloom, to encourage the side-shoots to break away. When these are about 2 inches long they should be severed from the stem by gently peeling them away by a downward pressure. Just trim off the ragged bark that adheres to

the shoot, but leave the "heel," which is the thickened stalk at the junction with the main stem. Cut away a couple of pairs of the lower leaves, and insert the lower part of the cutting in a light compost of sifted leaf-mould and loam with a liberal addition of sharp silver sand. The cuttings may be put into shallow pans or boxes, or, perhaps better still, close round the edges of 5-inch pots.

The shoots which are calculated to make the best cuttings are generally available in plenty during the month of August, and at that season will root readily under hand-lights or in cold frames situated where they get good light, but not much sun.

For the first fortnight or so they may be kept "close," and after the first watering will be found to require but little further moisture.

As soon as the points of the shoots show signs of putting forth small young leaves a little ventilation during the middle of the day may be given, and thenceforth it will soon be found that slight overhead waterings will be beneficial. September is not too late to put in cuttings, but it is not wise to propagate so late as to necessitate artificial heat to assist rooting. The Antirrhinum should be recognised as a hardy plant that requires no coddling, and the less the plant is treated to fire-heat the better will its robust and healthy constitution be maintained.

In the early days of the new year the young rooted cuttings should be potted off, and when the main shoot begins to make rapid growth its tip should be pinched out, to induce side-growths to break away, making bushy young plants in time for the planting season. Henceforward the treatment of plants propagated from cuttings should be the same as recommended for seedlings.

A Few Hints on Growing for Exhibition.

To grow Antirrhinums for the exhibition-table an effort must be made to concentrate all the energy of the plant

into the production of a limited number of fine, tall spikes. Thus, after the first pinching, to induce the young plants to "break," the grower should select about three or four of the most vigorous growths, and carefully remove the others while still small, cutting them cleanly away with a sharp knife, close to the main stem. As the selected shoots rise they should be provided with neat stakes, and should be tied, but not too tightly, at intervals, to prevent them blowing about. None of the large leaves growing on the selected stems should be removed, but the small shoots that form in the axils may be pinched out as soon as large enough to handle between the thumb and finger. The plants must be kept well watered during dry periods, and as soon as the flower-buds begin to make themselves plainly visible feeding may be judiciously taken in hand.

One method of feeding is to sprinkle small quantities of a good fertiliser around the plants, and in showery weather this is the best method to adopt. Such reliable fertilisers as "Clay's," Multiple, Ichthemic Guano, or Bull's Treblefold, may be used at the rate of a teaspoonful per plant, given once a fortnight. Another concentrated manure that has given great satisfaction is Wellson's Plant Food. This may be spread evenly but thinly over the whole surface of the bed, and lightly hoed in. Four to eight ounces per square yard makes a dressing that will carry the plants well on toward blooming, and it may be repeated in three or four weeks' time with advantage. Should the season be dry, a better method of feeding is to first well soak the bed with clear water, and an hour or two later give another soaking with liquid manure. Wellson's makes good liquid manure by placing a few pounds in a cotton or canvas bag and immersing in a barrel or tank of water for a day or two. The liquor should be diluted until it is of a light-brown colour. The other fertilisers mentioned should be dissolved at the strength advised by the manufacturers, but never make

the mistake of trying to improve good progress by applying such liquids at too high a strength. Great injury may be caused through too powerful a dose of chemical manures.

The only insect troubles that are likely to prove injurious to Antirrhinums are greenfly and small caterpillars. Timely spraying with some such insecticide as Katakilla, Kilzall, or Abol, will keep the plants clean.

When showing in classes for a stated number of spikes cut the finest spikes, with as many open flowers as possible, and with stalks as long as it is possible to cut them.

Cutting should be done either in the early morning or in the cool of the evening, and if the flowers are to travel a considerable distance they should be placed in water for an hour or two, then carefully packed in a long box lined with soft tissue-paper.

Antirrhinums travel better in this way than standing in tubes of water, because the vibration and jarring of the standing stems during a journey causes many of the "pips," as the individual blooms are termed, to fall.

Although classes for individual spikes are still provided at some shows, and whilst readily admitting that a dozen well-developed spikes of good varieties make a very attractive display, it must be granted, even by the lover of the old florists' ideals, that the modern and increasingly popular method of showing Antirrhinums in masses is productive of far more imposing results. The best method of all is that of grouping on ground space in such a manner as to represent as nearly as possible a bed or section of a border of growing plants. For this purpose a certain proportion of large spikes should be suitably distributed, the intervening spaces and foreground being filled in with smaller spikes taken from plants that have been pinched but not reduced to few stems. Even these small spikes should, however, be lightly arranged to preserve a natural effect, not crammed closely into the

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vases. In regard to arrangement of colours it is necessary to have regard to tasteful blending of delicate shades and producing bold contrasts of brilliant hues, but this is more a matter of individual taste than one that can be taught by written instruction.

See that every vase is well filled with water, but do not resort to syringing or spraying the blooms. It is surprising how many exhibitors of considerable experience persist in this practice, and yet they must have seen how the water on the blooms turns them almost transparent in patches, and gives them a dirty appearance through adhesion of the dust that inevitably arises in a busy exhibition, whether under canvas or in a hall.

Where classes are provided for a given number of spikes of six or a dozen varieties "distinct," the utmost care must be exercised to avoid even slight variation in colour, such as might lead to the impression that a mixture is staged. Such variation is frequent even in good strains of seedlings, and thus it is really preferable when catering for such classes to grow from stock propagated from cuttings. This point is another strong argument in favour of the group system, for which seedlings, with their strong, vigorous, and upstanding spikes, are admirably adapted; but even with these it is very undesirable to admit pronounced variations in the flowers constituting one vase or clump, and the purer one's varieties, the greater the merit of the exhibit.

It is well the exhibitor should have a clear idea of the "points" or qualities of a good Antirrhinum.

To begin with the "pip," or individual bloom, this should be large, bold, and well-balanced. The standard, or crowning petal, should stand well up, with a backward curve. It is a great defect when the standard droops forward or "hoods" over the nose of the flower. The nose should be full, rounded, and show neither depression nor a tendency to split, and the less of yellow visible at the

tip the better. The frill, or lip, which falls round the base of the nose should be broad, well spread, and very pure in colour, whatever may be the shade. The tube should be long, symmetrical, and free from a pinched appearance. In selfs the tube should be pure and solid in colour; in the bicolours it should be pure white, free from flecks or splashes of colour.

The arrangement of the pips upon the stem is an important point. The ideal is a full spike without crowding. It is a serious defect to have a spike so sparsely furnished that an inch or more of bare stem is visible between the pips. The aim should be to show spikes set with blooms facing in all directions round the stem. Do not show spikes that have lost the lower blooms, leaving seed-pods to view, and, on the other hand, it is not good to show half-developed spikes that have too great a proportion of unopened flowers and half-formed buds. Stems which are fasciated, bent, or twisted should not be shown. Names of varieties should be neatly written on white cards not more than 2½ inches by 1 inch. Neat wire holders for the cards are to be preferred rather than heavy-looking sticks.

Present-Day Varieties.

It is not my intention to attempt to compile a complete list of the varieties of Antirrhinums now in cultivation. Such a task would not be worth the labour involved, for reference to a few good seedsmen's catalogues will furnish both names and descriptions, and some will be found represented by natural-colour illustrations.

Moreover, the pace of progress is so rapid that a number of the finest varieties of one season are superseded by much superior novelties the next season, so that a list printed in a book of permanent character—if such this little work may be styled—would very soon become out of date and incomplete.

Still, it is meet we should acknowledge the successful work of our raisers, who have given us many superb varieties that may well hold prominent positions in the most select collections for years to come; and, furthermore, it may be of service to readers who are not yet familiar with the best Antirrhinums of to-day to make a few remarks on some of those which are of distinct character and particular merit.

If one colour has been more strikingly developed than another it is surely flame-red, a shade of colour which cannot more aptly be described than by comparing it to the radiant glow of a brightly burning fire.

We have a number of these gorgeously coloured varieties now in commerce, varying, it is true, in the degree in which either scarlet, orange, or vivid red predominates the one over the other, whilst in other details, such as height, size of bloom, and arrangement of colours on standard, tube, or lip, there is sufficient variation to give each its own interest. Afterglow, Bonfire, and Fire King are three of the group that have become widely known and popular, and probably from selections of these have sprung the more recent introductions of flame-coloured varieties.

Messrs. W. H. Simpson and Son, of Birmingham, catalogue and, I believe, brought out a few years since a tall-growing development of Fire King which they named The King. More recently Messrs. Watkins and Simpson introduced Torchlight, a noble flower of almost dazzling brilliance, with a large, shapely pip well set on strong, erect spikes.

To my mind one of the most pleasing and meritorious departures from the general run of varieties was Messrs. Hurst and Sons' introduction, The Fawn. Not only is its colour unique and altogether charming, its soft apricot and peach-pink tints being exquisite, but its pips are of ideal form, and although the spikes are not long,

the arrangement of the flowers in regular paired formation makes for good effect. We have more recently been favoured with an even better variety of almost identical colouring, named *Prima Donna*, and for whatever purpose *Antirrhinums* are grown this is one that should be included in the first half-dozen.

Deep velvety crimson is always a popular colour, and we have some extremely beautiful *Antirrhinums* of that colour. *Warrior* is one which grows to a good height, and throws long, well-furnished spikes. *Indian Prince*, another tall one, has a pure white tube which sets off the deep shade of the standard and frilled lip to advantage. The individual pips of this variety are very large. *Black Prince* is well named, for its flowers are as dark as would be beautiful, the foliage also being exceptionally dark. Two varieties quite recently introduced by *Simpsons* are *Lady Roberts*, a perfectly clear primrose self, and *Sybil Eckford*, which has a creamy ground colour, shaded and edged with delicate apricot-pink. Sweet Pea growers will grasp an idea of the colouring from the fact that it is a faithful reproduction of the pea bearing the same name. White *Antirrhinums*, generally speaking, have been somewhat lacking in size and in the placement of the flowers on the stem, another blemish being a conspicuous yellow tip to the nose of the bloom. *Messrs. Watkins and Simpson*, who have given us quite a large proportion of our finest varieties, have succeeded in producing a really pure white, the yellow tip being eliminated, while the spikes are closely set with fine shapely flowers. This variety is aptly named *Purity*. From the same raisers came *Silver Queen*, a variety that produces large blooms of a pleasing pinky-mauve shade overlain with a shimmering silvery sheen. It is a distinct and charming flower. Of pale pinks and delicate salmon shades we have several beautiful varieties, one named *Enchantress* copying exactly the shade of the *Perpetual Carnation*, adored by

all. Wild Rose, Peach Blossom, Fascination, such are the names of others in various delicate tints. Cottage Maid, an erstwhile favourite, and Nelrose, which was hailed with delight some few years ago when it arrived from America, are superseded by better varieties; but although many more names might be mentioned and other varieties extolled, one may, with the addition of a rich yellow such as Golden Gem, claim to have at any rate a representative collection when those here referred to are installed. As time goes on some will be outclassed by newcomers, and it will be all to the good of the cult if old ones are discarded in favour of their superiors, else the too rapid multiplication of names will but lead to confusion and bewilderment.

POSSIBILITIES OF FUTURE DEVELOPMENT.

For a long time to come it will afford occupation to keen fanciers to still further improve Antirrhinums by means of systematic selection of seed-raised plants. It occurs to one, however, that there may be scope and possibility for quite new developments in the direction of real hybridising with other species of the genus Antirrhinum.

We have those delightful little trailers beloved of Alpine plantsmen, *A. asarina* and *A. glutinosa*, which make dainty little plants to drape the face of boulders on the rockery. It should be worth effort to work upon these with the rich crimson, the clear pink, and the flame-coloured Tom Thumb varieties of *A. majus*, for the production of procumbent or semi-trailing varieties with rich and brilliant colours would provide new and wondrously beautiful plants for wall-gardens, rockeries, and for narrow borders where ground covering is more to be desired than height.

Some of the *Linarias*, closely akin to the Antirrhinum,

light, airy, and graceful in form, wonderfully prolific in flowering, could also probably be effectively crossed with the large-flowered brilliant Antirrhinums, and none can foretell what novel and lovely rock, wall and border, or bedding plants might thus be produced.

In this, as in all hybridist's work, one must be prepared to exercise patience, and maybe endure disappointments; but if as a reward genuine hybrids could be secured between the florist's Antirrhinum and *L. triornithophora*, or *L. organifolia*, or even *L. saxatilis*, the achievement would be a new triumph and source of enjoyment in our gardening.

PENTSTEMONS

THERE is no necessity to occupy the restricted space available in this little handbook with complimentary description of the charms and merits of the Pentstemon, for one does not require to be told that a plant that produces on tall, erect stems a succession of large, semi-drooping, bell-shaped flowers in some delightful shade ranging from the palest flesh-pink to the most dazzling scarlet, glowing crimson, or rich plum-purple, is a beautiful and desirable one; and surely the Pentstemon, which has enjoyed popularity among the most favoured of florists' flowers for long, long years, stands in no need to-day of anything simulating formal introduction. For the benefit of any who may be quite novices in the pursuit of horticulture it may be said that as a florist's flower of which a rich and varied collection may be acquired and cultivated with ease and moderate outlay, the Pentstemon is eminently and admirably suited to the needs of the aspiring enthusiast who seeks a subject upon which a limited amount of time, space, and expense may be spent with every possibility of reaping full and gratifying reward.

Pentstemon, according to old works on nomenclature of plants, was the name chosen because the members of the genus produce flowers having five stamens, and the reflexed rim of the tubular or bell-shaped blossoms is also scalloped or lobed into five more or less equal portions.

The whole family embraces a considerable number of

species, most of which are hardy, at any rate in sheltered spots and warm localities. Some are truly herbaceous and perfectly hardy, forming strong clumps with many crowns and abundant fibrous roots, but these, for the most part, produce comparatively small flowers.

The florist's Pentstemon, with which we shall specially concern ourselves, and which is decidedly the most attractive and popular member of the genus, is more of a subshrubby than true herbaceous character. Raised from seed, it grows into a branching plant from one main stem, whilst it is readily propagated from cuttings, a method which is necessary when the desire is to perpetuate and increase stock of any particular variety.

The latter was the method adopted by the old florists of Scotland and the North of England, who maintained collections of choice named varieties which they grew for exhibition; and it may be remarked that these ardent enthusiasts practised such an elaborate system of cultivation and bestowed such care upon their choice varieties in order to bring their flower-spikes to the greatest possible state of perfection that what in the rougher, less refined state was a perfectly hardy plant that could brave any British winter became a subject of rather delicate constitution, requiring the protection of a cold frame in winter, although still resenting anything in the nature of coddling and artificial heat.

As a keen lover of florists' flowers and an enthusiastic supporter of flower-shows, I have no quarrel to make with the sound and clever cultivators who have thus treated their treasures—indeed, I am grateful to them for so elevating and vastly improving a beautiful flower; for however much the old florist may be reviled by those who follow what they term the "natural" style of gardening, it is safe to say we should never have had the richness and perfection we so much enjoy in many flowers to-day had it not been for the skilful breeding to high standards

which the florists set up, and the resolute manner in which they rejected all rogues and inferior interlopers from their choice collections.

There is one admission that must be made—and not only does this apply to the Pentstemon, but to practically all florists' flowers that are both easily raised from seeds and propagated from cuttings—seedlings of good form, size, and colour are so readily produced that the number of named varieties put into commerce is far larger than necessary, and as a result of many growers raising and selecting the best of their seedlings for naming as new varieties we have always quite a number that, although bearing different names, are to all intents and purposes identical with each other.

The similarity in varieties of Pentstemon is the greater because the range of actual colours is confined to narrow limits. There are no pure yellow or rich orange shades, no true blues, and scarcely a pure white; but, having remarked upon the limitations of colour, let me ask where we may find a wider and more delightful range of shades and tints than in Pentstemons. The pinks begin with the palest flesh or blush, on through salmons, roses, and combinations indefinable. We have scarlets with pure white throats, others which have faint lines of colour on the white throat, others stained and deeply blotched, and then there are full reds, deep crimsons, plum and purple shades, in each of which there are white-throated and pencilled varieties. Mauve and lilac Pentstemons are available, although there are no real blues, and cream is to be found either verging to ivory-white or to sulphur-yellow, and some of these are washed in pink or carmine. To some tastes nothing is more beautiful than a brilliant outer colour with a spotless white throat, and as the reflexed margin of such flowers is always banded with the colour corresponding to the exterior, the sharp contrast to the interior white is

certainly very striking. Others, however, prefer the varieties that have distinct lines and veins of colour running down the throat. This marking is technically known as pencilling, and keen florists are extremely particular in requiring that a pencilled flower shall be very clear, definite, and well-balanced in its markings; that the lines of colour shall be unbroken and evenly distributed, with no indistinct feathering or stray blotches to mar the clearness of the white ground. Size of bell, breadth and symmetry of the reflexed margin, strength and erectness of flower-spike, and even distribution of the flowers on the stems, are other "points" in the canons of a perfect Pentstemon of the real florist's type.

It originated from a cross between *Pentstemon cobaea* and *P. Hartwegii*. The former was introduced from America, I believe, about 160 years or thereabouts ago. It bears purple and white flowers, varying in brightness and depth of colour, but tending to washiness as compared with approved flowers of the present day.

P. Hartwegii is a Mexican plant of wiry growth with narrow pointed leaves and tubular scarlet flowers. The combination of these two has resulted in a race of plants so vastly superior to both parents that neither the American nor the Mexican plants are considered worthy of attention apart from botanical interest.

Some few other species are in cultivation, the chief being *P. barbatus*, throwing tall, sparsely clothed spikes of small tubular flowers, which are, however, of a particularly brilliant coral scarlet. A group of these plants in a herbaceous border produces in the aggregate a very striking effect.

P. glaber is a dwarf, tufted plant of robust constitution which produces short loose spikes of small bell-shaped blossoms in varying shades of lavender, mauve, and lilac. It is easily raised from seed, and may also be propagated by division of the clumps; but it is only a suitable subject

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for unimportant positions, such as the margins of shrubberies or approaches to the wild garden.

P. azureus is another North American species. It makes a woody little bush about a foot in height, and bears a quantity of small blue flowers. A batch of a dozen or score of plants produces a good colour effect. Quite possibly this little plant might be of service to the hybridist who cared to make an effort to secure a real blue florist's Pentstemon, but doubtless size of bell and spike would suffer by the cross, and much patience and many disappointments lie in the path to be trodden ere a blue of exhibition quality might thus be secured. *P. Menziesii* has some red, some lilac, and some purple flowers, all of which may be obtained from one batch of seedlings; and we have also *P. confertus*, sometimes named *Cærulea purpureus*, a tall-growing shrubby plant with small, variable flowers ranging from a faint lilac to purplish-blue. No particular skill is required in the cultivation of any of these minor species, and their merits justify no more than passing mention, although they are cheap, easily raised, free-growing plants, of service to those who wish to fill large borders with subjects that demand a minimum of care.

THE CULTIVATION OF PENTSTEMONS.

Whether the ultimate purpose is to furnish beds and borders in the garden, to grow plants in pots for the decoration of a conservatory, corridor, or veranda—for which Pentstemons are excellent subjects—or to grow for competition at the leading shows, cultivation will in the first stages be the same, except for the one point that plants for the open garden may be raised from seed, whilst the named varieties required for exhibition must be propagated from cuttings, and even for bedding, where one particular colour or a definite arrangement of colours is required, cuttings alone can be relied upon.

Propagation from Cuttings

may therefore be our starting-point, and the best time for propagating is the month of August, although cuttings may be taken throughout September with good prospect of success.

The stock plants from which cuttings are desired should have their flower-spikes cut immediately below the basal blooms before the middle of July. This will encourage the production of vigorous young shoots from the axils of the leaves on the main stems, and these shoots, when about 3 inches to 4 inches in length, make ideal cuttings. Sever the shoots at their junction with the main stem, making a clean, sharp cut immediately beneath the lowest leaf-joint, to form the base of the cutting. The first two pairs of leaves must be removed by cutting with a sharp knife close to the stem, but not so close as to damage the bark or skin of the stem. The cuttings should be inserted in the soil as quickly as possible or they will soon wilt and droop, greatly to the detriment of the chances of success. The best compost for rooting cuttings is made up of equal parts of sifted leaf-mould, loam, and sharp silver sand, a sprinkling of finely crushed charcoal being a distinct advantage.

The best plan of all is to put the cuttings singly into clean thumb pots; for they not only root quicker, but can be potted into larger pots without the slightest check through breaking young roots.

Failing the use of thumb pots, alternatives are to make up a bed of the prepared compost in a cold frame, providing a depth of about 6 inches over a layer of rough material to assist drainage, the cuttings being firmly dibbled in about 3 inches apart, or to insert six or eight cuttings around the edge of a 48-sized pot half-filled with crocks and filled up with compost dressed down to make it evenly firm; or again, it is quite possible, although least

desirable, to utilise boxes about 4 to 5 inches deep, taking care to bore holes in the bottom, and cover with a layer of rough drainage.

The cuttings should in any case be placed in a cold frame, choosing a position where they will not be scorched by too much sun. Water overhead with a rosed can, and keep the frame closed. Avoid giving too much water, but during hot weather a light syringing may be necessary occasionally to maintain freshness. One little point should be observed when making and handling Pentstemon cuttings. If the foliage is carelessly handled, so that leaves are cracked or bruised, the cutting will in all probability collapse and damp off. It is the common practice of some propagators to cut off the ends of the larger leaves, but it is folly to do so; a great deal of sap exudes from the wound thus caused, considerably weakening the cutting.

Within a month of insertion the cuttings should assume a brighter tint, and the points of the shoots will appear to be starting into fresh growth, indicating that roots have begun to form. This should be a signal that fresh air may be admitted to the frame during the warmest part of the day, and often during September there will be warm windless days when the glass covering may be entirely removed for a few hours. Watering must then be attended to, but it is best given early in the day, in order that there may be no condensing moisture during the chilly night hours.

The young plants will remain in the frames throughout winter, requiring only the additional protection of a thick mat during very severe frosts. The cuttings rooted in thumb pots may be potted on into 60's during autumn, but those in large pots or boxes will pass through the winter undisturbed. Both these and those rooted in a bed should, however, be potted in early spring, and will be ready for final planting in the open by the latter end

of April, those that are to be flowered in pots being potted into 6-inch pots a week or two earlier than this, replacing them in the frames until well established.

Permanent Quarters.

The ideal site for a bed of Pentstemons is a well-drained position open to a fair amount of sunlight, but sheltered from rough winds. The best soil is a good full-bodied loam into which a good dressing of old, well-rotted manure and some burnt earth or wood ashes have been worked.

Do not overcrowd the plants. Eighteen inches apart is near enough, and if space can be spared it will be advantageous to allow 2 feet per plant. Firm the soil well around the roots, and provide each plant with a neat, inconspicuous, but rigid stake, to which the rising stems can be looped with strands of raffia. Do not simply draw up all the stems in a bundle, but loop each one separately, in such a manner as to merely hold it in position without destroying the natural form and free habit of the plant. During periods of drought Pentstemons require copious supplies of water, and as soon as flower-spikes show well-defined buds feeding may commence. Any of the concentrated fertilisers offered by well-known manufacturers will serve for top dressing the beds, but always observe the golden rule of giving slight sprinklings at frequent intervals rather than a heavy dressing at any one time.

Should greenfly, frog-hopper, or any insect pests be present in the garden, spray with Katakilla, Kilzall, Abol, or some other reliable insecticide, *before flower-buds open*, and if the foliage shows any sign of discoloration from fungoid pests dust with a powder made of equal parts of flower of sulphur and Limbux.

These are all the instructions necessary to the successful cultivation of Pentstemons in the open garden. It

simply remains to be said that in raising plants from seed sowing should be made in slight heat as early in the year as possible, pricking out the young seedlings as soon as they can be handled. Harden off gradually until the young plants can be safely transferred to a cold frame, and henceforward treat exactly as advised for cuttings. For the simple purpose of producing a display in the garden seedlings are even better than plants from cuttings, and there is always the interesting possibility of securing a seedling of outstanding merit, worthy of perpetuation and the dignity of a distinctive name.

Pot Culture.

Old books devoted to the cultivation of florists' flowers contained many elaborate recipes for the preparation of potting composts. Those who adopted the rôle of teachers made much of the importance of the proper mixing of soils, and went into the minutest details regarding exact proportions of weird mixtures of several kinds of soils and manures, and even as to the number of times the compost should be turned and the length of time that should elapse before the prepared compost might be used. Some successful exhibitors, out of vanity, bigotry, or narrow-mindedness, were wont to guard as mysterious secrets the method they adopted in mixing soils, and I have personal recollection of instances in my boyhood days where one or two of these veteran growers, with a view to finance, would demand and receive from novices payment for their particular formulæ. We are disposed to smile to-day at these old-fashioned notions, but behind it all there is the sound truth that a carefully balanced mixture of good soil with a judicious admixture of manure is a sure starting-point toward success. A good fibrous loam, made by stacking turves cut from a fairly heavy soiled pasture for a year or so to decompose, is a capital foundation for a good compost. Wire-worm

must be sought for and ousted. The loam should be chopped with a sharp-edged spade rather than sifted. Some good oak or beech leaf mould should be added to the extent of half the bulk of the loam. Some thoroughly rotted stable manure, sifted, may be added at the rate of half a peck to the bushel of soil, or some finely pulverised sheep manure such as Wellson's Plant Food, 1 pound to the bushel, will make a rich compost. Coarse silver sand, wood ashes, or powdered charcoal sprinkled through as the compost is turned over, will keep the soil open and sweet, and with such a compost the plants may be potted with every prospect of success. Clean 6-inch pots with eight or ten pieces of crock over the drainage-hole should be used. Press the soil quite firmly around the roots, and leave an inch to the rim of the pot for watering.

Plants for exhibition should be kept to one stem, removing all side-shoots as soon as they can be pinched out with thumb and finger. Those required for conservatory decoration should have the point of the main stem pinched out when about 5 inches high. This will cause side-stems to break out, and three or four of these may be selected to grow on to maturity. The plants should be grown in an airy position, and so long as scorching sun-heat is avoided the more light and air the better. Attend regularly to watering, and during warm weather frequently syringe the plants overhead until flower-buds begin to open. Upon the first appearance of buds feeding may commence. Liquid manure made from sheep, cow, or horse dung may be given, or, if preferred, a small teaspoonful of some concentrated fertiliser may be spread round the edge of the pot and gently watered in, repeating the dose after an interval of three weeks or so.

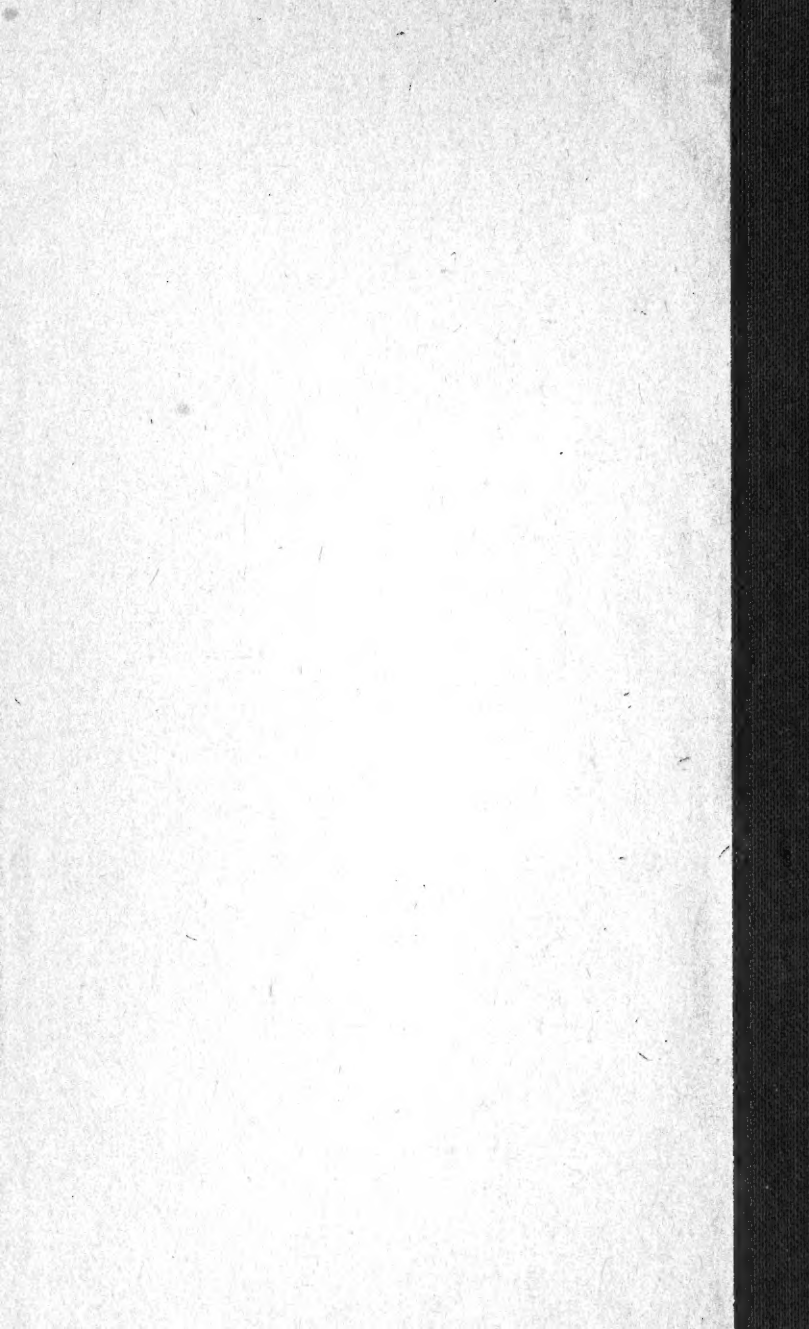
For exhibiting cut spikes narrow tubular vases with weighted base should be used, one spike to each vase being staged. This, of course, is applicable to classes

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for a stipulated number of named varieties. For a collection jasper vases to hold three or more stems each may be used, but only one variety should occupy one vase.

In the 1887 catalogue issued by that grand old florist, John Forbes, of Hawick, 344 named varieties of Pentstemons were listed. Some of the names are still familiar, but year by year since then new varieties have made their *début*, some to disappear in a short time, some to remain, but the total number of names that have been given to Pentstemons is so bewilderingly large that to single out a few as being worthy of special mention would be futile. Any up-to-date florist's catalogue will furnish names and descriptions, and any florist who specialises in Pentstemons may be relied upon to supply a dozen or more varieties selected to provide the novice with distinct and pleasing sorts that will form the nucleus of a good collection.

For bedding purposes there are also varieties in legion, but exceptionally popular are Newbury Gem, a small but free-flowering vermilion scarlet, and Southgate Gem, a larger and equally brilliant flower, but those who wish for pinks or more delicate tints, or rich glossy purples, will find no difficulty in getting their wants supplied.



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